



## Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact [support@jstor.org](mailto:support@jstor.org).

Among the applications of photography now being presented in *The Process Photogram* of London, that of recording tree forms, in the March number, is of interest to botanists, since, as the editor says, it is truly "a very difficult task to give a photographic account of a tree."

## PETROGRAPHY.

**The Petrographical Province of Essex County, Mass.** — A very careful and critical study of the igneous rocks of Essex County, Mass., is given us by Washington<sup>1</sup> in a recent series of papers in the *Journal of Geology*. The district "is characterized as one of rocks which are more acid or more basic than normal, high in alkalis, with Na<sub>2</sub>O predominating over K<sub>2</sub>O, high in iron oxides, especially FeO, rather high in Al<sub>2</sub>O<sub>3</sub>, and low in MgO and CaO." The rock types recognized are granites, quartz-syenites, diorites, essexites, gabbros, rhyolites, and the dike rocks, aplite, microgranite, diabase, paisanite, and camptonites. The essexites embrace also pulaskites and litchfieldites, characterized by the presence of albite, nepheline, ægirite, and alkaline amphiboles.

All these rocks are regarded as differential phases of a laccolitic mass, with a composition approximating that of an acid diorite.

The first differentiation of this magma is thought to have given rise to the granites, syenites, diorites, and the granito-diorite dikes, and a further local differentiation of the basic forms to foyaites, essexites, and paisanite-tinguaite dikes.

Each of the rock types occurring in the district is carefully described, and of each a chemical analysis is given. The work is thorough. As the result of the paper, Essex County becomes one of the best known petrographical provinces in the country.

The two most interesting dike rocks<sup>2</sup> of the district are a glaucophane-sölvbergite containing cordierite, and an analcite-tinguaite. Analyses of these two rocks follow:

SiO <sub>2</sub>	TiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Fe <sub>2</sub> O <sub>3</sub>	FeO	MgO	CaO	Na <sub>2</sub> O	K <sub>2</sub> O	H <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	Ign.
64.28	.50	15.97	2.91	3.18	.03	.85	7.28	5.07		.08	.20 = 100.33
56.75	.30	20.69	3.52	.59	.11	.37	11.45	2.90	.04 Cl =	.28	3.18 = 99.92

**Nepheline-Syenites.** — The corundum-bearing nepheline-syenites of Ontario are of such economic interest that the Canadian official

<sup>1</sup> *Journ. of Geol.*, vol. vi, p. 787, and vol. vii, pp. 53, 105, 284, and 463.

<sup>2</sup> *Amer. Journ. Sci.*, vol. vi, 1898, p. 176.

geologists have recently carefully examined them. Coleman<sup>1</sup> describes an exposure on the New York branch of Madawaska River, in Dungannon township, as a light and gray banded rock cut by a pegmatite dike composed of large crystals of nepheline and muscovite. In the syenite are nepheline, albite, oligoclase, labradorite, orthoclase microcline-biotite, scapolite, calcite, muscovite, and occasionally augite and apatite. Corundum is also present, as small grains and large crystals usually associated with muscovite. Specimens obtained from exposures in other portions of Dungannon and neighboring townships present variations from the rock referred to above, but they are not of special significance.

In one case, however, a medium-grained white rock from Methuen, Peterboro County, consists essentially of a plagioclase, more acid than the plagioclase of the anorthosites.

The corundum in these rocks is thought to represent the excess of  $\text{Al}_2\text{O}_3$  that existed in a magma supersaturated with alumina, but not saturated with silica.

Miller<sup>2</sup> outlines the situation of three belts of the corundiferous rocks. These rocks, like those referred to by Coleman, are syenites, nepheline-syenites, and an anorthosite. The last-named rock was analyzed, with this result :

$\text{SiO}_2$	$\text{Al}_2\text{O}_3$	$\text{Fe}_2\text{O}_3$	$\text{FeO}$	$\text{CaO}$	$\text{MgO}$	$\text{Na}_2\text{O}$	$\text{K}_2\text{O}$	$\text{CO}_2$	Tot.
26.24	29.85	1.30	2.12	16.24	2.41	1.98	.18	1.03	= 101.35

Its feldspar has the formula  $\text{Ab}_1, \text{An}_4$ , *i.e.*, it is a bytownite. The rock is from the Seine River.

Another occurrence of nepheline syenite in New Jersey is added by Ransome<sup>3</sup> to those already known in the State. The rock forms a portion of the trap mass of Mt. Gilboa, near Brookville, which is intrusive in Triassic beds. The constituents of the syenite are : orthoclase, anorthoclase, and other feldspars, nepheline, hornblende, ægirine, biotite, cancrinite, muscovite, analcite, natrolite, apatite, fluorite, and calcite, the last six named, with the exception of apatite, being secondary. An analysis gave :

$\text{SiO}_2$	$\text{TiO}_2$	$\text{Al}_2\text{O}_3$	$\text{Fe}_2\text{O}_3$	$\text{FeO}$	$\text{CaO}$	$\text{BaO}$	$\text{MgO}$	$\text{K}_2\text{O}$	$\text{Na}_2\text{O}$	$\text{H}_2\text{O}$	F
54.68	.79	21.63	2.22	2.00	2.86	.05	1.25	4.58	7.03	2.15	.22
		$\text{SO}_3$	$\text{P}_2\text{O}_5$	Total			Less O = F				
		.07	.28	99.81 —			.09		= 99.72		

<sup>1</sup> *Journ. of Geol.*, vol. vii, 1899, p. 437.

<sup>2</sup> *Amer. Geol.*, vol. xxiv, 1899, p. 276.

<sup>3</sup> *Amer. Journ. Sci.*, vol. viii, p. 417.

With this syenite are also associated a biotite and a hornblende-syenite and a hornblende-granite. The major portion of the trap mass is a fine-grained hypersthene-gabbro. The relation of the syenites to the trap could not be discovered.

**Notes.** — The granite-gneiss near Middletown, on the Connecticut River, is, according to Westgate,<sup>1</sup> an igneous rock. The rock is a biotite gneiss, often containing eyes of feldspar consisting of cores of single orthoclase crystals enclosing grains of other feldspars, and sometimes surrounded by peripheral zones of a granular feldspar.

A second series of analyses of Italian volcanic rocks is presented by Washington.<sup>2</sup> Among them is an analysis of ciminite from La Colonetta, on the south slope of Monte Cimino; one of the "micatrachyte," or selagite, from Monte Catini, Tuscany; one of an andesite from Radicofani, Tuscany, and one of the well-known leucitite of Capo di Bove. The analyses of the ciminite (I), the selagite (II), and the leucitite (III), follow:

SiO <sub>2</sub>	TiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Fe <sub>2</sub> O <sub>3</sub>	FeO	MgO	CaO	BaO	Na <sub>2</sub> O	K <sub>2</sub> O	H <sub>2</sub> O	Tot.
57.31	.40	14.71	1.21	4.37	7.80	6.90		1.35	6.38	.18	= 100.61
56.39	2.07	12.88	2.36	3.54	7.83	4.06		1.30	7.84	1.33	= 99.60
45.99	.37	17.12	4.17	5.38	5.30	10.47	.25	2.18	8.97	.45	= 100.65

The ciminite analysis differs from the original analysis of Washington's type rock in showing less Al<sub>2</sub>O<sub>3</sub> and more MgO. The difference in the two analyses is explained as due to incomplete separation of the two oxides in the earlier analysis. The selagite appears to be a minette-like form of ciminite, differing from the latter in possessing biotite in place of olivine and orthoclase.

An excellent description of the titaniferous iron ores of the Adirondacks appears from the pen of J. F. Kemp.<sup>3</sup> The ores are shown to contain small quantities of hypersthene, augite, plagioclase, and many of the other constituents of gabbros. From their close association with rocks of this class, the author regards the ores as differentiation products of their magmas, in the same way that the titaniferous ores of Minnesota, of Sweden and Norway, and of other places are believed to be varietal phases of a similar magma. Incidentally, the paper describes a few gabbros and anorthosites from near Lake Sandford, in Newcomb township.

<sup>1</sup> *Journ. of Geol.*, vol. vii, 1899, p. 638.

<sup>2</sup> *Amer. Journ. Sci.*, vol. ix, 1900, p. 44.

<sup>3</sup> *Nineteenth Ann. Rept. U. S. Geol. Surv.*, Pt. iii, p. 377.